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The Plant Disease Reporter is issued as a service to plant pathologists throughout the United States. It contains reports, summaries, observations, and comments submitted voluntarily by qualified observers. These reports often are in the form of suggestions, queries, and opinions, frequently purely tentative, offered for consideration or discussion rather than as matters of established fact. In accepting and publishing this material the Division of Mycology and Disease Survey serves merely as an informational clearing house. It does not assume responsibility for the subject matter.

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REPORTS ON APPLE SCAB

Except where indicated otherwise, reports are by Emergency Plant Disease Prevention Project personnel.

APPLE SCAB DEVELOPMENT IN NEW HAMPSHIRE -- SPRING 1944: Lack of rain during the latter part of April, May, and the fore part of June delayed the development of the perithecia and the discharge of the ascospores of the apple scab fungus Venturia inaequalis in Central and Southern New Hampshire.

The rainfall at Durham for March was 4.43 inches, 1.35 above normal. From April 1-26, 3.84 inches rainfall, but from April 27 to May 22, a period of 24 days, only .05 precipitation was received. On May 22, .70 in. fell; from then until June 10, a period of 18 days, only .10 in. fell. Except for the rain of .70 in. on May 22 for a period of 43 days only .16 in. of rain was recorded. Initial spore discharge usually occurs at Durham between April 30 and May 8, depending upon the weather. In 1939 spore discharge was not recorded until May 23.

With the unusually dry weather perithecial development was quite variable for the several areas from which leaf samples were obtained.

At Hollis, mature spores were found on May 2; the spores were not discharged until May 22 (late petal fall). At Durham, Londonderry, and Hampton mature spores were first found about May 9. A few spores were discharged May 22 but a majority of the spores were not shot until June 10 (late petal fall). All mature perithecia were empty and leaves were badly disintegrating by June 25, following the rainy period June 15-25. At New Boston about 1% of the perithecia had developed asci in a few leaves close to the ground. In this orchard, with a southern exposure permitting rapid evaporation of dew coupled with dry weather, the perithecia did not develop normally and on June 23, following a long wet period, the perithecia which had lain dormant were producing mature spores. The spores were viable as determined by germination tests and were discharged with rain occurring late in June and the fore part of July.

In the Durham, Hampton, Hollis, and Londonderry areas sufficient water was present in the form of dew to mature the perithecia but spore discharge was delayed until rain occurred. In New Boston perithecial development was arrested until sufficient moisture from rains was obtained then a majority of the perithecia developed normally producing viable spores as late as July 1.

Most of the growers sprayed or dusted their trees according to the regular schedule based on tree development; as a result, the foliage was protected and there is less scab this year than last.

The uneven development of scab fungus for the various areas in the State illustrates the thorough sampling necessary if spray applications are to be based on a knowledge of the development of the fungus. -- M. C. Richards, New Hampshire Agricultural Experiment Station. July 26, 1944.

CURRENT OBSERVATIONS ON SCAB IN NEW ENGLAND: Southwestern Maine (York and Cumberland Counties), July 20-23. -- The most heavily infected trees seen in New England to date in a well-cared-for orchard were found in Acton, in a large orchard in which dusts have been used as the principal means of pest control. Prevalence on the leaves ranged from a trace to 100%, with

severity heavy on some trees. On the more seriously affected trees the fruits averaged about 5% infection.

New Hampshire, July 17-19. -- Scab is generally present in southern New Hampshire. The amount in sprayed orchards varies from less than 1% to about 2 or 3%. Hardly any is showing on the fruits to date.

Vermont, July 31-August 4. -- Scab was found well established in most orchards throughout the State. One day was spent with Charles Blasberg, of the University of Vermont, and Lucien Paquette, County Agent of Grand Isle County, where scab is particularly serious this year. It is not unusual to find scab on 15 to 100% of the leaves and 20 to 100% of the fruits of susceptible varieties in Grand Isle County. In some areas of other parts of the State there is less scab, and in certain orchards good control has been maintained. Nevertheless, Mr. Blasberg states that this is the most serious epidemic of apple scab in Vermont since 1937. Scab is definitely more prevalent this year than last, and last year it was worse than in an average year. In McIntosh orchards, where scab on the fruits ranges from 50 to 100% prevalence, severity is correspondingly moderate to heavy, often with half or more of the surface of some fruits covered with lesions. Although most of the season has been comparatively dry and hot in Vermont, Mr. Blasberg reports that a 10-day period of ideal scab infection weather occurred about the time the trees were beginning to blossom. Some growers have been prone to overlook the influence of this fact on the necessity of spraying during the subsequent dry warm season. Heavy primary infection was established and secondary infections have not been prevented in spite of recent unfavorable weather for scab development.

Massachusetts, July 24-29. -- In all orchards in Plymouth, Middlesex, and Worcester Counties where a fairly regular spray program has been followed it is often difficult to find a trace of scab even on the leaves of McIntosh. In some orchards where a modified control schedule was adopted because of the dry season as much as 5% infection can be found on the fruits as well as on the leaves. On unsprayed trees the leaves are mostly 100% severely infected, and fruit infection ranges from 15 to 100%. -- Robert C. Cassell.

SCAB IN NEW JERSEY AND DELAWARE: Scab was practically absent in commercial orchards in the Dover-Smyrna-Cheswold area in Delaware. Neglected orchards and home orchards showed scab on all but the newest developing leaves. In New Jersey scab was observed frequently in commercial orchards on susceptible varieties. In the Moorestown and Vineland areas scab lesions were found on the 2nd to 3rd secondary leaves, and in neglected orchard near Moorestown infection was observed on the 3rd to 4th leaves, and also on the petioles and fruit pedicels (May 20). -- E. A. Walker.

APPLE SCAB IN CENTRAL AND SOUTHEASTERN OHIO: Scab is well controlled in most of the orchards examined. There are small blocks of trees either insufficiently sprayed or sprayed at the wrong time that show fairly heavy infection. However, where spraying was adequate and applied just before spore discharge periods, the fruit is quite free from scab spots. -- M. R. Harris, July 24-29.

SCAB IN WISCONSIN: Scab is less severe than it has been for several years. At this time abundant secondary infections are developing in un-

sprayed or neglected orchards. In sprayed orchards some secondary infections are present in the tops and centers of badly scabbing varieties such as McIntosh. There appears to be much less scab in those orchards receiving timely eradicant ground treatment. -- Edwin E. Honey, Emergency Plant Disease Prevention Project, and Duain Moore and Clair Calavan, University of Wisconsin, July 11-22.

SCAB IN MISSOURI: Despite heavy blossoming, the fruit set in the limited area surveyed in western Missouri (Ray, Jackson, and Clay Counties, week ending July 22) is generally light. According to the growers, scab was serious and damaging during the flowering period. At present, however, scab infection appears to have been held in check in the well sprayed orchards. Light foliage infection is present, and on susceptible varieties moderately heavy infection of the fruit at the calyx end was noted on approximately 10% of the crop.

Scab is the most serious disease problem in the Cape Girardeau area of southeastern Missouri (week ending July 29). In certain orchards infection has been held in check with only a trace in evidence on foliage or fruit. In other orchards control measures have not been so successful and moderately heavy foliage infection was common and fruit infection ranged from 10 to as much as 60%, depending upon the variety. -- T. W. Bretz.

REPORTS ON OTHER DISEASES OF APPLE

Except as noted, reports are by Emergency Plant Disease Prevention Project personnel.

APPLE DISEASES IN SOUTHWESTERN MAINE: Fireblight (Erwinia amylovora) was seen in an Acton orchard where it was also observed last year. Infection was light to moderate throughout the orchard, but the disease was less prevalent than last year in spite of the fact that no control measures had been taken against it. Black Rot or Frogeye Leaf Spot (Physalospora obtusa) was also found in Acton, prevalence ranging from a trace on some trees to 90% on a tree or two. Severity ranged from slight to moderate. Cedar-Quince Rust (Gymnosporangium clavipes) was found in trace amounts on the fruits in Acton. -- Robert C. Cassell, July 20-23.

APPLE DISEASES IN NEW HAMPSHIRE: Black Rot Leaf Spot or Frogeye was seen in several orchards. Prevalence was less than 1% in all cases. A very heavy outbreak of Cedar-Apple Rust (G. juniperi-virginianae) was found on Winter Banana in one orchard in Hampden Falls. Prevalence on the leaves was 60 to 70% and severity moderate to heavy. A trace was developing on the fruits.

A serious infestation of European Red Mite was found in a 50-acre orchard in Stratham. The bronzed appearance of the foliage could be seen from a considerable distance upon approaching the orchard. Unless immediate control measures are applied premature defoliation will result with disastrous effects upon the yield. -- Robert C. Cassell, July 17-19.

RUST AND BLACK ROT IN VERMONT: Cedar-Apple Rust was found as just a trace in Shelbourne and Grand Isle. Black Rot was seen in 2 apple orchards

in Isle La Motte. There was only a trace in one orchard, but about 2 or 3% of the leaves in the other showed Frogeye. -- Robert C. Cassell, July 31-Aug. 4.

APPLE DISEASES IN MASSACHUSETTS: Black Rot Leaf Spot can be found in virtually every orchard observed in Plymouth, Middlesex, and Worcester Counties. In the majority of orchards where there has been good Scab control there is decidedly more Black Rot than Scab. In most orchards prevalence ranges from 80 to 100% with severity light or only a trace. A small amount of Fireblight was found on one apple tree in a Lakeville orchard (Plymouth County). Pears in the vicinity appeared free from the disease. Cedar-Apple Rust was observed in Littleton and Grafton in Middlesex County. In the Littleton orchard Gravensteins were 100% infected but the severity was light. Only a trace was found in Grafton. Less than 1% of Cedar-Quince Rust was observed in one orchard in West Acton (Middlesex County). A trace of Bitter Pit (Nonparasitic) was observed on Baldwin apples in Grafton. -- Robert C. Cassell, July 24-29.

BLACK ROT AND POWDERY MILDEW IN DELAWARE AND SOUTHERN NEW JERSEY: Black Rot Leaf Spot appears to be more abundant this season than usual in home orchards not properly sprayed and pruned. Most commercial orchards in the Cheswold-Dover, Delaware, and Vineland and Moorestown, New Jersey, areas were practically free, while neglected commercial orchards in the Dover-Leipsic area of Delaware showed considerable leaf-spotting. Powdery Mildew (Podosphaera leucotricha) was seen on some weak trees in one neglected orchard east of Dover. -- E. A. Walker, May 15-20.

FIREBLIGHT ON APPLE IN OHIO: Several orchards in central and southeastern Ohio were inspected during the period July 24 to 29. It was found that fireblight was seriously damaging many trees in several orchards. The number of blighted twigs ranged from a few per tree to more than a hundred on badly infected trees. Among the varieties showing most susceptibility were Jonathan and Rome Beauty. One orchard of 50 acres was severely blighted during the blossoming period, which resulted in a substantial reduction of the crop. The grower expects to harvest less than a thousand bushels.-- M. R. Harris

FIREBLIGHT AND BLACK ROT LEAF SPOT IN WISCONSIN: Fireblight was observed to be generally severe on trees in farm orchards in Dane, Columbia, and Marquette Counties. A trace only was observed in one commercial orchard in Door County. Black Rot Leaf Spot was observed in an unsprayed orchard in Kewaunee County. -- Edwin E. Honey, Emergency Plant Disease Prevention Project, and Duain Moore and Clair Calavan, University of Wisconsin, July 11-22.

DISEASES AND INJURIES IN MISSOURI: A trace of Cedar-Apple Rust and Black Rot foliage infection was observed in the area surveyed in western Missouri (Jackson, Ray, and Clay Counties), during the week ending July 22.

The apple crop in the Cape Girardeau area of southeastern Missouri, visited during the following week, is far below normal this season, owing to the light fruit set. Many apples were blown off by the high winds of July 26, but little damage occurred to the trees. Black Rot was present in all orchards. Foliage and fruit infection was generally light, but in one orchard

heavy foliage infection was common and moderately heavy fruit infection was observed. A trace of Cedar-Apple Rust infection of the foliage was noted in one orchard. In another orchard there was considerable Russetting of the fruit, particularly on the Yellow Delicious variety, apparently resulting from Spray Injury. -- T. W. Bretz.

FIREBLIGHT AND POWDERY MILDEW IN WESTERN COLORADO: Fireblight is general wherever apples are grown. It appeared to be causing most damage to apples in the Paonia district in Delta County, where on the more susceptible varieties like Rome Beauty from 15 to 25% of the fruit spurs are infected as a result of flower infection. A slight amount of damage to large twigs is evident at this time. Only a few fruits are showing brownish discoloration. Powdery Mildew was prevalent throughout Delta County. -- E. W. Bodine, period ending July 22.

POWDERY MILDEW IN THE NORTHWEST: Powdery Mildew was noted on Jonathan apples in western IDAHO; it was severe in many cases. In an orchard near Fruitland in Payette County, Powdery Mildew and Arsenical Injury had nearly defoliated the trees. -- Earle C. Blodgett, July 10-15.

Powdery Mildew was noted in several apple orchards in the Yakima Valley in WASHINGTON. No cases of significant damage were observed. -- Lytton W. Boyle, July 10-12.

DISEASES REPORTED ON PEAR AND QUINCE

Except where noted otherwise, reports are of Emergency Plant Disease Prevention Project surveys.

REPORTS ON PEAR SCAB: A trace of scab (Venturia inaequalis) was found in Isle La Motte, VERMONT. -- Robert C. Cassell, July 31-Aug. 4.

Pear scab was observed to a slight extent in WISCONSIN; it was more severe on unsprayed trees in Door County. -- Edwin E. Honey, Emergency Plant Disease Prevention Project, and Duain Moore and Clair Calavan, University of Wisconsin. July 11-22.

FIREBLIGHT ON PEAR AND QUINCE: Robert C. Cassell observed a light attack on a row of Quince trees along a private drive in West Acton, Middlesex County, MASSACHUSETTS (July 24-29).

Fireblight was present on a few Pear trees near Hazletville, DELAWARE, according to E. A. Walker (May 15-20). E. W. Bodine reported a slight amount of damage evident in western COLORADO wherever pears are grown; it was apparently most severe in the Austin area in Delta County (period ending July 22). Lytton W. Boyle found the disease to be prevalent in some pear orchards in the Yakima Valley in central WASHINGTON (July 10-12). According to growers it is more severe there than usual this season. Loss in the current fruit crop will not be great, but the lesions were extending a considerable distance down the branches and control will require cutting back to branches 3/4 inch in diameter in many cases.

PEAR DISEASES IN MISSISSIPPI: Although sand pear is often considered not to be of economic importance, in southern Mississippi it is one of the very few trees that can be found on practically every farm. It is also grown in orchards several acres in extent. From time to time, in earlier reports, references have been made to the severity of Leaf Blight (Fabraea maculata). Trees retaining even 10% of the normal amount of foliage are very rare, most trees being practically bare. In the 6 southernmost counties it was noted that many diseased trees had produced a second set of leaves that had also become infected and were beginning to drop. This condition was also observed in Louisiana, near Bogalusa. It is of interest to note that the disease is not common in the northern half of either State.

A considerable amount of Leaf Spot (Septoria nigerina) was observed on small-leaved pear trees near Holly Springs. -- Douglas C. Bain, July 17-26.

"WIND BURN" IN CENTRAL WASHINGTON: Many pear orchards in Okanogan County (July 19-20) show what is commonly called "Wind Burn". Burnt areas appear on the leaves, and the tendency of the leaves to curl or pucker slightly makes affected trees conspicuous for some distance. The basic cause of this disorder has not been determined. Some growers believe that it is correlated to some degree with the type of root stock used. Yields from affected trees are considerably reduced and the fruit obtained is of larger average size than desired. -- Lytton W. Boyle.

OBSERVATIONS ON X-DISEASE AND OTHER DISEASES AND INJURIES ON PEACH IN EASTERN NEW YORK

D. H. Palmiter

A partial survey of peach orchards in Ulster and Dutchess Counties on July 25 and 26 revealed the probable occurrence of Little Peach (Virus) in 2 orchards, at Highland and at Ulster Park.

Yellow-Red Virosis or X-Disease (Virus) was still present in 2 Ulster Park orchards where it had been noted in 1940. In one of these orchards, 2 blocks of trees had been removed because of this disease and the remaining block contained about 10% of infected trees. Diseased and healthy chokecherries, the wild host of the X-Disease virus, were found near this orchard. X-Disease was showing on peach trees in a Rifton orchard for the first time. The diseased trees were adjacent to diseased chokecherries growing in a rock pile in the center of the orchard.

Peach orchards observed in the Gardner, Walkill, and Milton areas were free from X-Disease. Few chokecherries were seen near these plantings and those observed were apparently healthy.

In Dutchess County X-Disease was not found on peaches south of Poughkeepsie. From Poughkeepsie north a high percentage of the chokecherries were infected and peach orchards were showing the disease wherever nearby chokecherries had not been removed. At least 5 peach orchards in the Red Hook area had been removed or abandoned since 1940 owing to the occurrence of X-Disease.

Arsenical Injury was common in all the peach orchards observed and was so severe in some cases that considerable defoliation had resulted. Twig

cankers were common and fruit drop resulted in some cases. The planting showing the least injury was one of very high vigor.

Brown Rot [Monilinia fructicola] was noted on the fruit of early varieties and twig cankers following blossom infections were noted in a few orchards.

NEW YORK STATE COLLEGE OF AGRICULTURE. Report from Weekly News Letter, July 31.

VIRUS AND OTHER DISEASES OF STONE FRUITS IN WESTERN COLORADO

E. W. Bodine

A survey was made in Mesa, Montrose, Delta, and Garfield Counties in company with Mr. Armando Ulloa, Plant Pathologist, Department of Agriculture, Quito, Ecuador, during the period ending July 22.

An estimated 100 Peach trees were observed to be infected with the Western X Virus Disease in the Palisade area in Mesa County. No infected trees were found in Montrose, Delta, or Garfield Counties. In the Palisade area the disease is definitely on the increase and natural spread from peach to peach apparently is taking place in this area. No chokecherries are growing in the immediate vicinity of the peach-growing section. Surveys in the Plateau Valley and the Grand Mesa region revealed that chokecherries in this part of Mesa County are healthy. Peach growers were informed of the presence of the disease and eradication is now in progress.

To date, 5459 peach trees infected by the Peach Mosaic Virus have been found and removed in Mesa County (from information furnished by Mr. Sisson of the U. S. Bureau of Entomology and Plant Quarantine). No Peach Mosaic was found in Delta, Montrose, or Garfield Counties during this survey.

The Golden-Net Virus Disease of peach was found in only a few trees in Mesa County. This disease does not appear to spread very rapidly in the orchards.

Several new cases of the Apricot Ringspot (or Ringpox) Virus Disease were found in the Palisade area. This disease has been found only in Mesa County so far.

Sweet Cherry Mosaic (Virus) was found in most of the trees of the Royal Duke variety in the Palisade area. Diseased trees recover sufficiently during the second year following infection to produce normal growth and an excellent crop.

Rasp-Leaf (Virus) of sweet cherry was found to have increased slightly in the Paonia area in Delta County and the Olathe district in Montrose County. The disease was not found in Mesa or Garfield County.

Coryneum Blight (C. beijerinckii) [C. carpophilum] was rather prevalent in some Apricot orchards in Delta County in the vicinity of Paonia, but in most apricot and Peach orchards in Delta County only a trace of infection was recorded, and only a trace was found on apricot and peach in Mesa County in the vicinity of Palisade.

Powdery Mildew (Sphaerotheca pannosa var. persicae) of Peach was found to be general on the Rio Oso Gem variety in the vicinity of Olathe in Montrose County. A moderate amount of infection was also found on Elberta in the vicinity of Cedaredge in Delta County. Only a trace was found in a few orchards in the Palisade area of Mesa County.

A Root Rot of undetermined cause is causing considerable loss to Cherry growers in the Olathe district in Montrose County.
EMERGENCY PLANT DISEASE PREVENTION PROJECT

DISEASES OBSERVED ON STONE FRUITS IN CENTRAL WASHINGTON

Lytton W. Boyle

Peach Leaf Curl (Taphrina deformans) has been reported from parts of this area previously. Mr. E. L. Reeves of the U. S. Bureau of Plant Industry, Soils, and Agricultural Engineering reports that in 1928 he observed only one infected tree in the northern part of the area in the vicinity of Croville, Okanogan County. Growers interviewed were not familiar with the disease.

Certain growers in the Yakima Valley, in Kittitas County, claim that this year is the first time Leaf Curl has appeared in their orchards. It was very prevalent but not severe in the orchards observed. The growers were much concerned because of certain severe outbreaks in adjacent canyons of the Valley.

At this date (July 13-21), it is a little late to observe this disease to best advantage in most of the area visited including Kittitas, Chelan, and Okanogan Counties. Remnants of infection indicate that it was rather generally scattered and severe enough to become of concern to the growers in many cases.

Secondary infections were noted in 2 instances, both in Okanogan County, one on young trees partly covered by a tall cover crop near Tonasket and another near Riverside on older trees growing near the Okanogan River level.

Evidence was not found to conclude either that this year was exceptionally favorable to the development of Leaf Curl or that inoculum is gradually building up in this area so that in the future the disease must be considered a factor in peach growing. In some orchards it was prevalent enough this season, however, to make the use of a dormant spray good insurance against subsequent outbreaks.

Powdery Mildew (Sphaerotheca pannosa var. persicae) was evident on the fruit but not on the foliage in peach orchards observed in a cursory survey of the orchard area in Yakima County northwest of Yakima (July 10-12). It was prevalent at the higher elevation but was not noticed at lower levels. Considerable loss will occur if fruit from affected orchards is graded for the fresh fruit market. Injury will probably not be great enough to reduce the grade materially if the fruit is sold for processing.

In Apricot orchards observed in Douglas County on the flats along the Columbia River above Orondo (July 17), from 10 to 15% of the Moorpark fruits were split. Growers claim that the use of chemical instead of organic fertilizers aggravates this trouble.

In Okanogan County (July 19-20), in the area between Okanogan and Croville, much apricot fruit is being lost this year because of severe blemishes which may be classed into 2 general types. The more common type is a small brown lesion on the fruit. In severe cases the skin is roughened and from a distance resembles a rough brown piece of sandpaper. The second type might be described as "False Ringpox" since until closely examined it may readily be mistaken for that virus disease. Fragmentary evidence re-

garding the basic cause of the trouble was contradictory. In certain cases it seemed to be correlated with liberal use of poultry or barnyard manure. In other cases growers claim that the trouble appears to be spreading within orchards. Exposure of the fruit to the sun aggravated the condition but could not be considered a primary cause.

Rasp Leaf (Virus) was noted to be rather prevalent in a strip through an orchard of Bing Sweet Cherries in Yakima County (July 10-12).

EMERGENCY PLANT DISEASE PREVENTION PROJECT

DISEASES AND INJURIES REPORTED ON SOUR CHERRY IN WISCONSIN

Edwin E. Honey, Duain Moore, and Clair Calavan

Between July 11 and 19 inclusive, inspection of cherry orchards was made in Door County, and some observations were made in other counties enroute to and from Door County. Picking of early cherries was begun in certain orchards in the southern portion of the peninsula during the week of July 10 to 15. In a much larger number picking was begun July 16 to 22. Many late cherries will be ready for picking about a week later. Early cherries run rather small in size. The prospects are for a very good yield, possibly a record or nearly a record cherry crop. A much needed rain would increase the crop greatly.

Leaf Spot (Coccomyces hiemalis) was well controlled in most sprayed orchards in Door and Kewaunee Counties. About 2 sprays, most commonly Bordeaux mixture, had been applied to control it. A few growers had put on 3 sprays and some even 4. Because of earlier dry weather Leaf Spot had not so far become so critical as in the average year.

Blossom Spur Blight (Monilinia laxa), which was first observed in Wisconsin in 1941 but was probably present some years before that, appears to be very restricted in distribution in Door County. It was first known to occur near North Bay in Bailey's Harbor township. It has also been observed in restricted locations in Sevastopol and Sturgeon Bay townships. A brief survey conducted during this period did not extend the known range materially. Although this disease may occur on both early and late varieties, it is far more severe and important on Early Richmond than on Montmorency. Counts made in one orchard in the North Bay area indicated that this year, under conditions where no special spray had been applied for the control of this disease, natural infection was less than a third of that of last season. In this orchard from 2 to 15%, with an average of 7.5%, of the blossom spurs had been blighted this year. Last year more than 50% of the blossom spurs were affected in some Early Richmond orchards in the North Bay area.

Brown Rot (Monilinia fructicola) was observed on a few scattered ripening fruits, especially of Early Richmond, apparently chiefly fruits injured by various mechanical causes or about to be dropped naturally. This Brown Rot did not appear to be of great economic importance on sour cherry as yet.

Powdery Mildew (supposedly Podosphaera oxyacanthae) was observed in the conidial stage only, on cherry sprouts, young trees, and certain terminals. It did not appear to be of serious nature to date.

Virus Diseases. During the week of July 3 to 8, a heavy wave of defoliation caused by the Cherry-Yellows Virus became evident in most affected

orchards in Door County. During the following week symptom expression continued in less degree. Several orchards were mapped for virus troubles. Since there was danger of confusing copper injury with virus yellows on the Early Richmond variety, only Montmorency orchards were surveyed. The results of this virus survey are given in the table. Three virus symptom groups were distinguished in this survey, viz., Yellows, Green Ring Yellows, and Necrotic Ringspot. Yellows was by far the most abundant, affecting in the various orchards from about 2 to 63% of the trees examined. Of the total 2134 examined trees over 19% had Yellows, whereas less than 1% were affected by Green Ring Yellows or Necrotic Ringspot. The very low record of Necrotic Ringspot obtained in these orchards is probably not representative of cherry orchards in general in Door County.

Virus Disease Survey on Montmorency Cherry in Door County, Wisconsin. July 12 - 14, 1944

Orchard Number	Age of Trees Years	Total number examined Trees	Percent Trees with Yellows	Green Ring Yellows	Necrotic Ring Spot
1	-	315	9.0	0.6	0.0
2	-	236	54.2	0.8	0.4
3	± 15	373	7.5	0.0	-
4a	10-11	121	31.4	0.8	-
4b	12-13	165	16.9	0.0	-
5a	20	94	62.7	0.0	-
5b	17	104	6.7	0.0	-
5c	15	50	2.0	0.0	-
6	13	154	2.6	0.6	-
7	13	247	17.0	0.8	-
8	?	275	19.6	0.0	1.8
Totals	-	2134	19.4	0.4-	0.3-

Miscellaneous. Besides the Virus diseases, a symptom believed to result from a Nutritional trouble was observed in some of the orchards. Commonly this occurs on only a few trees in an orchard, but in one in Liberty Grove township over 31% of the trees were so affected.

A few trees with badly curled leaves indicated Root Troubles and a few other trees showed symptoms of Silver Leaf.

Hail Injury. A slight amount of Hail Injury was observed in a few orchards in Sturgeon Bay township. It appears to have resulted in very little economic loss, although several orchards in a narrow strip in the southern portion of the township suffered severe damage.

EMERGENCY PLANT DISEASE PREVENTION PROJECT AND UNIVERSITY OF WISCONSIN.

OTHER REPORTS ON DISEASES OF STONE FRUITS AND RELATED HOSTS

NEW HAMPSHIRE: In one Cherry orchard in Durham 10% loss was attributed to Brown Rot (Monilinia fructicola). Leaf Spot (Coccomyces hiemalis) is just becoming noticeable. Light infection is present on from 1 to 2% of

the leaves.

Occurrence of Brown Rot on Prunus japonica in the Station Nursery was pointed out by Dr. M. C. Richards. Infection seemed to be general, in moderate to heavy amounts. -- Robert C. Cassell, July 17-19.

VERMONT: A mixed planting of about 35 cultivated and wild Plum trees in Isle La Motte was found to be seriously affected by Black Knot (Plowrightia morbosa) [Dibotryon morbosum]. The infection was apparently of a few years' standing. A few trees had died and others were progressively dying. -- Robert C. Cassell, July 31 - August 4.

MASSACHUSETTS: Thirty percent of the trees in a small Peach orchard in Grafton, Middlesex County, were affected by X-Disease (Virus). Probably only 8 to 10% were in a serious condition. Chokecherry (Prunus virginiana) at the edge of the orchard was also affected. -- Robert C. Cassell, July 24 - 29.

NEW JERSEY-DELAWARE-MARYLAND: Bacterial Spot (Xanthomonas pruni) infection of Peach leaves was light in the Dover-Leipsic, Delaware, area. In New Jersey it was very severe at Fairton (May 14), with some leaf drop resulting, and in an orchard at Newport, and was observed in orchards in Millville, Buena Vista, Hammonton, Vineland, and Medford. None was seen in orchards at Moorestown. Leaf Curl (Taphrina pruni) was observed in several generally neglected home orchards at Parole, Maryland, Dover and Smyrna, Delaware, and Newport and Vineland, New Jersey. Spray Burn was noticed in an orchard near Auburn, New Jersey, and another in Cheswold, Delaware. -- E. A. Walker, May 15 - 20.

WISCONSIN: Chlorotic Ring Spot (Virus) was observed on chokecherry (Prunus virginiana) in Door County. -- Edwin E. Honey, July 11 - 22.

MISSOURI: Indications point toward an excellent Peach crop in the Cape Girardeau area of southeastern Missouri. A heavy windstorm on the night of July 26 caused considerable loss, however. An estimated 10 to 15% of the fruit was blown from the trees and many of the older trees were badly damaged. The fruit remaining on the trees is exceptionally clean. Light Scab (Cladosporium carpophilum) and Bacterial Spot infection of a few scattered fruits was observed. Only a trace of Brown Rot was observed on injured, ripening fruit. Light Bacterial Spot infection of the foliage was prevalent in all orchards and a trace of Scab was noted on the foliage and current year's wood. Evidence of early Leaf Curl infection could still be seen on some terminals. -- T. W. Bretz, week ending July 29.

IDAHO: Coryneum [carpophilum] causing Fruit Spotting, and Alternaria Rot, Brown Rot, Botrytis Rot, and Rhizopus Rot, were noted on Lambert Cherry in a fruit-packing plant at Lewiston. Apricots were slightly affected by Coryneum Fruit Spot. -- Earle C. Blodgett, July 2 - 8.

OREGON: In Malheur County in eastern Oregon the Virus diseases Western-X-Disease and Wart were noted during the period July 10-15 in 2 Peach orchards, and Coryneum was causing injurious Fruit Spotting. All 3 diseases were found in another orchard during the following week. -- Earle C. Blodgett

THE DWARF BUNT DISEASE OF WHEAT IN IDAHO IN 1943[1]

Earle C. Blodgett[2]

In January 1935, Young (5) published an abstract describing tests with a new variety of Tilletia tritici [T. caries] known in Montana since 1931. He called special attention to the extremely dwarfed stems of affected plants.

Later in 1935 Tingey and Woodward (4) in Utah called attention to the prevalence of covered smut during recent years and commented on the fact that "the predominant type of smut prevailing in all these fields was Tilletia tritici, the diseased culms being characterized by a dwarfing habit of growth."

In 1936 Holton and Heald (2) discussed Young's report and stated that a similar race had been observed in Klickitat County, Washington, for several years and that it was very conspicuous because of the degree of dwarfing and excessive tillering of infected plants. They further stated that because of the extreme dwarfing effect this smut came to be recognized as "short smut" and was prevalent in southern Idaho, northern Utah, Montana, and Washington. Bever (1) stated that "short smut" was first observed in Latah County in 1938 and then only a trace could be found. In 1939 he reported that short smut caused very little loss in southern Idaho but that in the eastern part of Latah County infection ranged from traces up to 40 or 50%.

For unknown reasons, this smut has been confined largely to the areas mentioned above and extensive spread has been surprisingly slow.

The purpose of this brief note is to indicate the general distribution and extent of infection of dwarf bunt (as the disease is now commonly called) in Idaho and to call attention to an apparently unreported variation characterized by the "closed head" type of symptom.

During the 1943 surveys, over 135 fields of winter wheat were examined with particular attention paid to incidence of dwarf bunt. Nearly all the examinations were made after harvest had been completed and it is felt that accuracy of estimations was not diminished since most plants infected with dwarf bunt are passed over by both binder and combine operations. Because nearly all smutted heads are left standing in the stubble, dwarf bunt is sometimes called "stubble smut". Thus fields with severe infestations frequently appear to have been left unharvested.

As shown in Table 1 and Figure 1, dwarf bunt has been found at locations in 14 counties in Idaho and one (incidentally) in Wyoming. The disease is serious in Latah and Oneida and concern was shown by growers in Bear Lake County. Some areas (localities such as Swan Valley in Bonneville County, Teton Basin in Teton County, and southeast of Pocatello in Bannock County) are reported to have trouble with dwarf bunt but no opportunity was had for

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[1] Issued as Part 4 of the 1943 summary of plant disease surveys in Idaho. Parts 1 and 2 were included in PDR Suppl. 149, Part 3 in the preceding issue PDR.

[2] The writer wishes to express his appreciation to C. S. Holton for helpful suggestions and critical reading of this manuscript.

Table 1. Distribution and incidence of dwarf bunt in Idaho as observed in surveys, 1943[a].

County	Town	Location	Percent of infection	Comment
Latah	Troy	S.W.	25-75	Severe
	"	E.	5	
	"	S.E.	5-80	Severe
	Moscow	S.W.	T to .5	
	"	N.E.	T. to 2	Palouse area
	"	N.	0	
	Lenville	S.	20	
	Genesee	N.	T	Palouse area
	"	E.	0	
	"	S.E.	0	
	Cameron	E.	5	(J.M.Raeder)
Clearwater	Southwick	S.E.	5	(J.M.Raeder)
	Ahsahka	N.W.	5	(J.M.Raeder)
Lewis	NezPerce	N.	5	(J.M.Raeder)
	Craigmont	W.	T	
Idaho	Cottonwood	N.	T	
	Grangeville	N.W.	0	
Oneida	Malad	N.W.	10-50	
	"	W.	10-50	
	"	N.	1-2	
	St. John	W.	10-50	
	Ridgedale		5-75	Pocatello Valley
	Holbrook	N.E.	15-50	
	"	S. E.	0-T	
	Buist	S.	T-1	
Bannock	Downey	W.	0-1	
	Bancroft		T	
	"	W.	2	
	Alexander	W.	T	
Franklin	Preston	N.	T	
Bear Lake	Raymond		10	
	"	N.	15	
	Bloomington	S.	T	
	St. Charles		0	
	Georgetown	N.	0	
Lincoln (Wyoming)	Border	N.	5	(Fields noted in Idaho and Wyoming).

Table 1 (continued)

County	Town	Location	Percent of infection	Comment
Caribou	Soda Springs	S.E.	T	
	"	N.	T-15	
Fremont	Ashton	E.	T-1	
Madison	Rexburg	E.	0	
Power	American Falls	W.	0	
	"	N.W.	0	
	"	S.	0	
	Landing	S.	0	
	"	S.E.	0-T	
	Roy	S.	0-T	
	Rockland	N.	0	
	"	N.W.	0	
Bonneville	Idaho Falls	E.	0	
Benewah	Plummer		T	(C.S.Holton)
Kootenai	Worley		T	(C.S.Holton)
	Post Falls	W.	T	(C.S.Holton)

[a] Each location represents one to several fields examined which varied widely in size. The infection percentages given are broad approximations.

surveys there in 1943. Of special interest is the information reported personally to the writer by Holton that dwarf bunt had been observed by him in fields near Plummer (Benewah County) and near Worley and Post Falls (Kootenai County) in 1937.

During examinations of many fields it was found that infected plants, if only a few occurred, could usually be found in low places in the field or along natural drainage.

Among growers, and dealers as well, there was no consistent recognition of dwarf bunt as different from the regular type. Some had observed that the bunt disease became less troublesome after seed treatment programs had been started. This effect undoubtedly refers to the regular forms of bunt since the dwarf bunt race is not controlled by seed treatment. It is believed that a great deal of fruitful effort could be spent on this problem in the State since some wheat varieties possess marked resistance (3) (4). In Latah County, Forty-fold wheat is commonly grown and is highly susceptible. Elsewhere Turkey wheats, also susceptible, predominate.

Of special interest was the occurrence in a few heavily infected fields near Malad and Soda Springs, of what is believed to be an unreported symptom of dwarf bunt. County Agent M. C. Grover and the writer found one

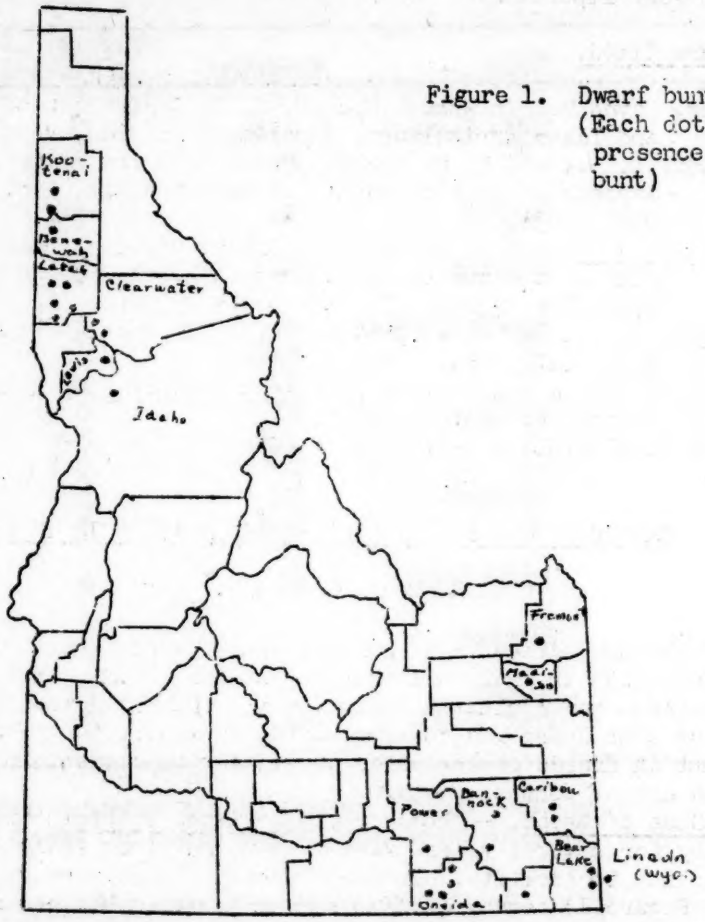

Figure 1. Dwarf bunt in Idaho (Each dot represents presence of dwarf bunt)

wheat field in particular near Malad that showed many plants which, although typically dwarfed, bore heads that superficially appeared healthy. At first it was thought that this might be a charcteristic of the host variety, but upon close examination the kernels were found to be smutted, although the glumes and awns were normal. Typically, both regular bunt and dwarf bunt produce an "open" head with the smut balls exposed, but in this case the smutted heads were "closed".

It is unknown at present what significance, if any, may be attached to this variation in symptoms. Observations, especially in other States, should be made to note its occurrence, and in 1944 surveys it will be of considerable interest to extend the examination of fields to new localities in Idaho. The finding of dwarf bunt in fields northeast of Moscow and north of Genesee represent the first report of the disease in what is regarded as the typical Palouse region. If conditions should favor spread

of the fungus into this territory in severe amount the problem of control would be very important.

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3. _____, and C. A. Suneson. Wheat varietal reaction to dwarf bunt in the western wheat region of the United States. Journ. Amer. Soc. Agron. 35: 579-583. 1943.
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EMERGENCY PLANT DISEASE PREVENTION PROJECT

DAMAGE BY SMUTS TO SMALL GRAINS IN ILLINOIS IN 1944

L. R. Tehon and G. H. Boewe

All of the smut diseases of small grains, except those attacking oats, caused more loss in 1944 than they did in 1943. With oats, the value of seed treatment and resistant varieties was clearly demonstrated by the reduction of both loose and covered smuts. However, the large amount of loose smut in fields of the older oat varieties emphasized the need for increased use of control measures.

Loose Smut of Wheat. -- Loose smut [Ustilago tritici] which has been increasing for several years, varies in amount from field to field and from locality to locality. In the 50 wheat fields surveyed this year (see the map, Figure 1) counts of diseased heads were obtained ranging up to 21%, and the average for all fields was 2.5%. Moderate to rather heavy loss occurred in most of the fields examined in the central part of the State. Very light to moderate infections were found in the northern part and light to moderate infections were seen in most fields in the southern part. No wheat fields were seen this year with as much loose smut as was seen in some fields last year, but in general loose smut was two to several times as abundant in most fields this year as it was a year ago.

The loose smut occurring in this year's crop was predetermined when wheat was in bloom a year ago. With weather favoring infection at that time, we predicted an increase in 1944. This occurred over a large part of the State. Again this year, in some areas, weather was favorable for infection. In those areas we can expect smut to increase again next year. Elsewhere, it is likely to be at least as severe as this year. The hot water treatment is the only one which will control this disease, and we urge that it be used very generally on seed to be sown this fall.

Stinking Smut of Wheat. -- Stinking smut [Tilletia sp.], which for several years has been found only rarely in our field surveys, was found this year in 5 of the 33 counties in which fields were surveyed. In 2 fields, one

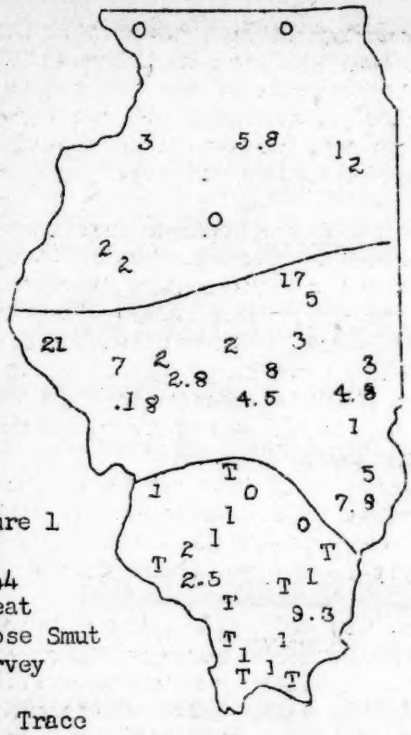

Figure 1

1944
Wheat
Loose Smut
Survey

T = Trace

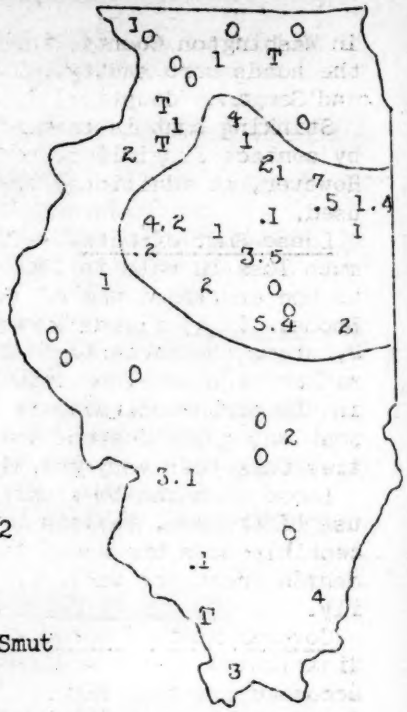

Figure 2

1944
Oats
Loose Smut
Survey

T = Trace

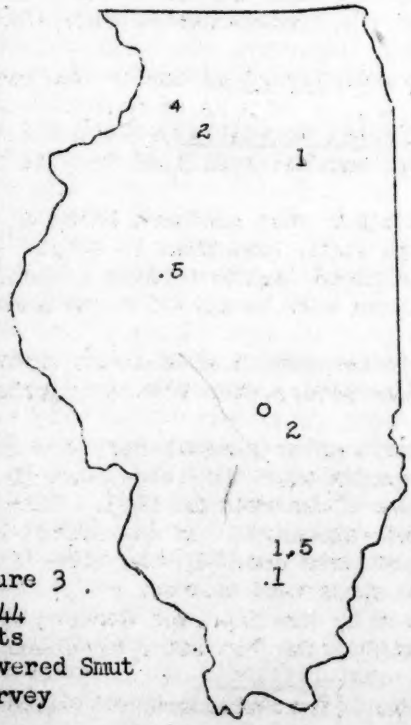

Figure 3

1944
Oats
Covered Smut
Survey

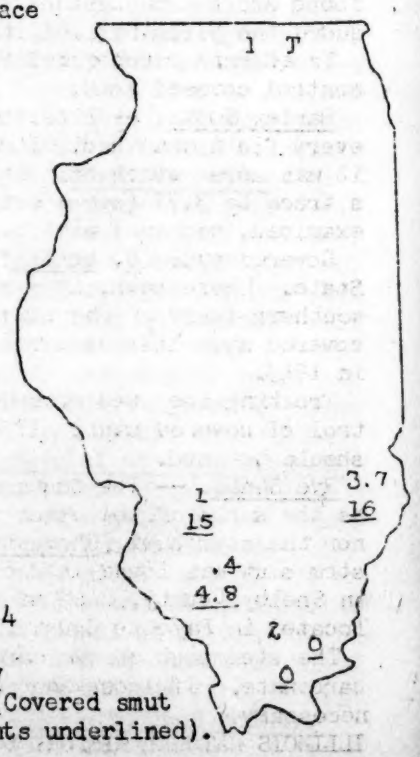

Figure 4

1944
Barley
Smut (Covered smut counts underlined).

T = Trace

in Washington County, the other in Champaign County, fewer than 0.1% of the heads were smutty. In 3 other fields, one each in Lawrence, White, and Sangamon Counties, 1, 2, and 5% respectively of the heads were smutty.

Stinking smut is carried on the surface of the seed and can be controlled by contact fungicides, of which New Improved Ceresan is perhaps the best. However, no additional treatment is needed if the hot water treatment is used.

Loose Smut of Oats. -- This disease [U. avenae] caused less than half as much loss in oats in 1944 as it did in 1943. This was due in large part to the increased use of the new, resistant varieties Tama, Vicland, and Boone. In 45 fields surveyed, the average loss was 1.25%. The map, Figure 2, shows the percentage of smutty heads found in the individual fields. A rather high level of infection prevailed in the large oat producing area in the north-central part of the State. In the extreme north, where loose smut was quite destructive last year, a general switch to resistant varieties this year very greatly reduced the loss.

Loose smut can be greatly reduced in the 1945 oat crop by the more general use of the new, resistant varieties and by seed treatment. If smut susceptible oats are sown, New Improved Ceresan, Smuttox, or the dry formaldehyde treatment will, if properly applied, control loose smut satisfactorily.

Covered Smut of Oats. -- Covered smut [U. kolleri], although widely distributed, was found in only 7 of the 45 fields surveyed this year. The accompanying map, Figure 3, shows the localities in which the disease was found and the percent of smutty panicles in each field. Covered smut reduced the yield by 1.6% in the 7 fields in which it was found.

Treatments recommended for the control of loose smut of oats will also control covered smut.

Barley Smuts. -- Loose smut [U. nuda, U. nigra] of barley was present in every field examined. It was not especially serious in most fields, but it was more severe than in 1943. Infection ranged in different fields from a trace to 3.7% (see the map, Figure 4) and averaged 1.4% for all fields examined, compared with 0.2% in 1943.

Covered smut [U. hordei] was found only in the southern third of the State. Where seen, it was very much worse in 1944 than in 1943. For the southern third of the State, if random fields examined were typical, the covered smut loss amounted to 7.2%, compared with 1.1% for the same region in 1943.

Treating the seed with New Improved Ceresan will give satisfactory control of covered smut. If loose smut was severe, the hot water treatment should be used.

Rye Smuts. -- The smuts of rye are neither so general nor so destructive as the smuts of the other small grains. Neither the loose smut [U. tritici] nor the stem smut [Urocystis occulta] were observed in 1943. This year stem smut was found in 2 of the 5 fields examined. In one field, located in Shelby County, 2.4% of the stems were diseased. In the other field, located in Fayette County, 3.3% of the stems were smutty.

The stem smut of rye can be controlled by New Improved Ceresan or copper carbonate. If loose smut were destructive, the hot water treatment is necessary.

ILLINOIS NATURAL HISTORY SURVEY, URBANA. (From mimeographed letter to Illinois Farm Advisors, August 1).

DISEASES OF SMALL GRAINS IN THE RED RIVER VALLEY OF MINNESOTA AND NORTH DAKOTA

Wheat. -- Stem Rust (Puccinia graminis tritici) will not cause any loss on bread wheats in the Red River Valley. Rival is the only one of the resistant wheats to be attacked and infection is so light that no loss need be expected. On durum wheats, mainly the Mindum variety, stem rust is occurring and there may be slight loss in some of the late fields. Most fields are sufficiently far advanced that stem rust will cause negligible loss.

Leaf Rust (Puccinia triticina) [P. rubigo-vera tritici] occurs on all bread wheats, even the more resistant varieties such as Newthatch being heavily infected.

Scab (Gibberella zeae) is more common and destructive in the Red River Valley than in any previous year. In the southern part of the Valley, from Ada, Minnesota to Hillsboro, North Dakota and south, moisture has been abundant and Scab is common in all fields. It is difficult to estimate loss from Scab alone. Head Blight, resulting from the killing of the necks by G. zeae, as well as from Root Rot (probably Helminthosporium spp.) complicates the situation. Root Rot is especially severe on durum varieties, fields of Mindum in Clay County, Minnesota having many blighted heads. The heaviest infection seen was 60% blighted heads in one durum field near Moorhead. Among the bread wheats, Root Rot is less severe, although one field of Rival had 50% of blighted heads. The development of grain in these blighted heads varies with the maturity of the crop, some heads containing little grain at all, other heads having all grains shrivelled, while in those heads where the plants died shortly before maturity, only slight reduction in bushel weight will result. Besides the evident Head Blight, in many fields tillers were killed in the boot stage, only the first formed shoot or shoots surviving to mature grain. In the southern part of the Red River Valley loss from Scab and Head Blight may exceed 15% but the full extent of the damage will only be realised at harvest.

From Ada and Hillsboro north, a very excellent crop of wheat is in prospect. Incidence of Scab decreases, although traces have been found as far north as Kittson County, Minnesota. Root Rot also diminishes northwards.

A Blackening of the Stems and Glumes is very common in most of the spring wheat area this year. In the wetter areas of the southern part of the Red River Valley, fields, especially those of Rival, are conspicuous by their deep brown color. This coloration is due to the heavy development of Black Chaff. While it is possible that some of this Black Chaff is due to Phytomonas [Xanthomonas] translucens undulosa, much of it appears to be physiologic in origin. Alternaria sp. can be isolated from much of the Black Chaff and also from the Blackening on the stems, but it is probable that this fungus invaded weakened tissues. No estimate can be made of potential loss from this Blackening.

Barley. -- The general condition of barley is similar to that of wheat, the crop in the southern part of the Red River Valley being poor while the northern part of the Valley has an excellent crop. Principal diseases that have reduced yields in the southern part of the Valley are Root Rots

(Helminthosporium spp.), Leaf Blights and Spots (Phytomonas [Xanthomonas] translucens and Helminthosporium spp. principally) and Head Blights (Gibberella zeae, Helminthosporium spp., and bacteria (P. [X.] translucens ?)).

Oats. -- The newer oat varieties (Vicland, Tama, Boone etc.) have not been heavily attacked by Stem Rust (Puccinia graminis avenae), although large susceptible-type pustules were commonly seen. Late fields may be injured. Rust-susceptible varieties (Gopher, etc.) have been attacked to a greater extent by Stem Rust, but most fields matured sufficiently early to escape serious damage. Crown rust (P. coronata) attacked all susceptible varieties and caused some loss. In the Fargo-Moorhead region of the Valley many fields of Vicland and Tama had lodged.

Flax. -- Little Flax Rust (Melampsora lini) has developed even on the susceptible Bison variety. Pasmo (Sphaerella [Mycosphaerella] linorum) is again becoming of great importance in the southern part of the Red River Valley. While relatively little Pasmo has developed in the northern part of the Valley it is probable that the disease will develop soon in that area. At Park River, North Dakota, experimental plots of flax varieties were severely attacked by Pasmo, indicating that weather conditions were favorable for an epidemic. Fields in the vicinity of Park River were free from Pasmo. The heavier incidence at the Park River station was due to the location of the plots, adjacent to a field in which flax had been grown in 1943 and which therefore furnished much of the inoculum. -- Ian W. Tervet, Emergency Plant Disease Prevention Project.

CEREAL DISEASE SURVEY IN NEBRASKA

S. M. Pady

This report is a continuation of the cereal disease survey in Nebraska (July 11-24) and will deal with those diseases other than the cereal smuts, which have already been reported (See PDR, No. 23, p. 741).

Winter Wheat (182 fields (22,000 acres) in 31 counties). The data on the Stem Rust epiphytotic are being assembled and summarized by Mr. M. E. Yount, Barberry Eradication Office, Lincoln, Nebraska, and a report on the losses from this disease will be available later.

Leaf Rust is present throughout the State (see earlier reports) but is inconspicuous in the mature fields. In the northern half where some fields still have green foliage leaf rust has increased with many fields as high as 50 to 60%, especially in Dawes, Box Butte, and Sheridan Counties.

Septoria is present to some extent in most fields. In southeastern and south-central Nebraska Speckled Leaf Blotch (S. tritici) has killed many of the lower, middle and some upper leaves (see earlier reports). In the southwest, Septoria is fairly abundant in late fields. In northwestern and northeastern Nebraska the fields are relatively free. Glume Blotch (S. nodorum) is present on many heads in southeastern and south-central fields and many lesions on the nodes and culms in mature fields in western Nebraska are probably caused by this species.

Scab is abundant in the eastern part of the State where it is present in practically all fields. In the following counties fields were observed in which 20 to 25% of the heads were infected: Washington, Cass, Knox, Boyd, Cuming, and Keya Paha.

Basal Glume Rot (Phytomonas [Pseudomonas] atrofaciens) was conspicuous in the late fields in Banner, Morrill, Dawes, Box Butte, and Sherman Counties with some fields running as high as 40 to 70%. In south-central and southeastern Nebraska the disease was noted in Adams and Cass Counties but the amount was slight.

Black Chaff (Phytomonas [Xanthomonas] translucens [f. sp. undulosa]) was found in a few fields in eastern Nebraska, in Washington and Cass Counties. One field in the latter county had considerable infection but for the most part damage is negligible.

Take-all (Ophiobolus graminis) was noted in 2 fields in southwestern Nebraska in Hitchcock and Perkins Counties and plants were killed in a few small patches.

Premature dying of scattered plants or "White Heads", mentioned in previous reports, is still increasing and is conspicuous in the fields that are still green. The poorly filled heads, dead culms, and rotting crown are typical of this condition. Such plants were found in the east in Washington and Cass Counties where it was very evident, in the south in Adams, Webster, Harlan, and Kearney Counties; in the west in Garden, Morrill, and Sheridan Counties, in the north in Keya Paha County. As indicated before, its occurrence throughout the State and its scattered distribution in the field distinguish it from dry-land foot rot, and it is possible that this may be a new disease which has become evident this spring owing to exceptionally favorable growing conditions. It has been found also in spring wheat in the northern part of the State.

Spring Wheat (22 fields (980 acres) in 9 northern counties). Leaf rust was the most serious disease noticed. It was found in 15 fields, ranging from 3 to 100%, averaging 33%. Since most of the fields were in the soft dough stage, there is a possibility of considerable damage. One field in Sioux County, in which the plants were in flower, had 100% infection, while another in the same county had 65% with grain in the soft dough stage.

Stem Rust was found in 20 fields, ranging in amount from a trace to 45%, averaging 12%. In 8 fields the amount was over 10%, and 5 of these fields were in Box Butte County. Considerable variation exists from field to field, but it is likely that Stem Rust will injure the crop in some areas, especially where susceptible varieties are grown.

Scab was observed in only 2 fields in northern Nebraska, being a trace in Boyd County, but was very conspicuous in a field in Knox County where it was estimated to be attacking over 25% of the heads.

The condition known as "White Heads" in winter wheat was found in one field in Box Butte County.

Septoria tritici was conspicuous by its absence, being found only on the flag leaves in one field in Box Butte County.

Oats (56 fields (1850 acres) in 30 counties). Stem Rust was present in all but 2 of the 56 fields examined, varying from a trace to 60%, averaging 14%. Most of the fields in the south and east and northeast were mature, while those in the west were generally green. In northeastern and south-

eastern Nebraska the Rust was light, ranging from a trace to 10%. Through south-central and southwestern Nebraska Stem Rust was heavy, ranging from 10 to 60% as far west as Keith and Perkins County. From there west to the Wyoming line, and in the northwest the amount was much less; in only one field (in Dawes County) did the infection reach 10%. The few fields with resistant varieties are in striking contrast to the neighboring susceptible varieties.

Crown Rust was found in 70% of the fields varying from a trace to 35%, averaging 13%. Most of the heavy infections were found in the northeastern (Cherry 25%, Knox 40%, Cedar 30%, Dixon 20%, Wayne 30%, 50%) and in the south-central part of the State (Adams 30%, 40%, Harlan 45%, 50%, 35%, 50%, Kearney 2%, 60%, Hitchcock 50%, Chase 30%, Perkins 50%, and Frontier 30%), and any damage from this disease will be confined to these areas.

Halo Blight (Phytomonas [Pseudomonas] coronafaciens) was not common, being found in Washington County (2 fields) in the east, and in Morrill County in the west (1 field), all in trace amounts.

Bacterial Stripe Blight (Phytomonas [Pseudomonas] striafaciens) was noted occasionally (6 fields) but was not causing any appreciable damage except in one field in Perkins County where it was severe on the lower leaves. It was also observed in trace amounts in Banner, Morrill, Box Butte, Sherman and Stanton Counties.

Scab was observed in a few plants in 2 fields in Wayne and Cuming Counties.

Barley (29 fields in 18 counties (720 acres)). Most of the barley fields observed were mature or in medium to hard dough stage. Stem Rust was found in 21 fields varying from a trace to 60%, averaging 24%, most of the heavily infected fields being found in the south-central and southwest particularly in Adams (40%), Harlan (50%, 35%, 50%), Hitchcock (50%, 60%), Perkins (15%), Frontier (30%, 20%), Deuel (30%, 50%) and Cheyenne (20%, 20%) Counties, the majority of the above fields being mature or in the hard dough stage.

Scab is extremely serious in the northeastern part of the State. All fields observed in Boyd, Cedar, Dixon, and Wayne Counties had 100% infection. The plants also are small and stands are light. The acreage is greatly reduced owing probably to the heavy losses reported to be caused by this same disease in this area last year.

Leaf Blotch (Helminthosporium sp.) was conspicuous in the fields where the leaves were still green and was especially abundant in fields in Hitchcock, Frontier, Deuel, Scotts Bluff, Dawes, and Keya Paha Counties.

Leaf rust (Puccinia anomala) was not common and was observed as a trace on scattered plants in a field in Dawes County and 5% infection in one field in Frontier County.

A condition greatly resembling Take-all of wheat was found in several western and southwestern counties, causing the plants to die just about heading time. In some cases the plants were killed out in small areas, while in others single plants appeared to be involved. Isolations made by Dr. W. T. Ray at Oklahoma A. & M. from material sent in from the field indicate that Helminthosporium sativum is the cause of the trouble. This condition was observed in 10 fields: in trace amounts in Harlan, Hitchcock, Perkins, Frontier, Scotts Bluff, and Knox Counties; in Franklin, Deuel, and Cheyenne Counties the amount was much greater, causing a loss of about 50%

of the plants in one field in Deuel County.

Bacterial Blight (Phytomonas [Xanthomonas] translucens) was not common, being present as a trace in a field in Banner County.

In Scotts Bluff and Dawes Counties some of the heads had kernels that appeared to be affected by Spot Blotch (Helminthosporium sativum). It was observed in only 3 fields and the damage resulting is slight.

Septoria Leaf Blotch (Septoria passerinii) was occasionally found. In 2 fields, in Dawes and Boyd Counties, Septoria lesions were observed on the leaves.

Rye. Stem Rust (Puccinia graminis secalis) was noted in 2 fields, in Banner County (2%) and Sheridan County (trace). Leaf Rust (Puccinia dispersa) [P. rubigo-vera var. secalis] was found in one field in Webster County causing 5% infection. Septoria Leaf Blotch (Septoria secalis) was observed on plants in Cherry and Lincoln Counties with pycnidia being present on the nodes in the latter field. A trace of Anthracnose (Colletotrichum graminicolum) was noted in 2 fields in Webster and Sheridan Counties.

Some plants in fields in Banner, Sheridan and Cherry Counties were found with conspicuous Black Lesions on the culms in the vicinity of the nodes. The lesions appeared to be sterile and material has been sent in for identification.

EMERGENCY PLANT DISEASE PREVENTION PROJECT

CEREAL DISEASES IN MONTANA

C. M. Slagg

The week ending July 22 was devoted to a survey of wheat diseases in central Montana, mainly in Cascade, Chouteau, Judith Basin and Fergus Counties. Over most of this area, a bumper wheat crop is in prospect. Only one small district in northwestern Chouteau and southwestern Liberty Counties has suffered from drought. Light to moderate hail damage was seen in 2 small areas, one near Moccasin in Judith Basin County, and one at Coffee Creek in Fergus County.

In the district surveyed, the Foot Rots were the most widespread and damaging of the diseases seen. These were of 2 general types, one causing infection and premature death of scattered plants in the fields, the other causing similar symptoms in definite spots, or areas in the fields. By microscopic examinations of specimens collected, the latter disease was diagnosed as the Take-All Foot Rot caused by Ophiobolus graminis. The scattered Foot Rot is believed to be of the Helminthosporium type because of its indefinite symptoms.

Take-All caused considerable damage to 2 areas, one between Moccasin and Moore along the Judith Basin-Fergus County line, the other in the Goosebill district of Chouteau County. The Helminthosporium Foot Rot may be described as causing light but widespread damage to wheat in central Montana in 1944, while the Take-All Foot Rot caused heavy damage in restricted areas.

Loose Smut (Ustilago tritici) caused widespread but slight damage to wheat in Cascade, Judith Basin and Fergus Counties. On the average the

loss is probably not over 1%. Very little loose smut was seen north of the Missouri River. On the other hand, only an occasional head of Stinking Smut or Bunt (Tilletia tritici) [T. caries] could be seen in the Judith Basin area, while as high as 15% bunted heads were counted in one field in the Pleasant Valley district 15 miles north of Fort Benton, and all fields in this district showed a fairly high loss from this disease.

Black Chaff caused minor damage in many wheat fields, the disease being more prominent in some fields that had suffered early but moderate hail damage. Leaf Rust, and Powdery Mildew (Erysiphe graminis var. tritici) were also widely distributed but of minor importance.

Other grain diseases noted in the area included Barley Stripe (Helminthosporium gramineum), Covered Smut of barley (Ustilago hordei), Loose Smut of barley (Ustilago nuda), Loose Smut of oats (Ustilago avenae), and Loose Smut of California barley.

EMERGENCY PLANT DISEASE PREVENTION PROJECT

CEREAL DISEASES IN COLORADO

E. M. Bodine

Stem Rust Survey in Eastern Colorado. -- A stem rust survey trip in eastern Colorado was made in company with Mr. E. A. Lungren, Associate Pathologist, U. S. Bureau of Entomology and Plant Quarantine, between July 24 and 28.

In Larimer County several fields of spring wheat, varieties Marquis, Thatcher, and Ceres were inspected. In the fields planted with the Marquis variety stem rust (Puccinia graminis) was 100% prevalent with a severity reading of 40 to 50%. This wheat was in the mid to hard dough stage. In one field of Ceres wheat on the dry-land, stem rust was 25% in severity and 100% prevalent. In this field the rust had not as yet infected the necks. This wheat was in the early dough stage. Only a trace of stem rust was found on Thatcher wheat. In one field of winter wheat on the dry-land, near Wellington, only a trace of stem rust was found. The yield in this field will be about 35 bushels per acre. Planting of this field was started the latter part of August and completed the first part of September on fallow land. Other fields in the same vicinity planted from the 10th to the latter part of September were weedy, thin, and heavily infected with stem rust. Here rust was 100% prevalent with 65% severity.

In the majority of barley fields now being cut in Larimer County, stem rust is 100% prevalent with 5 to 20% severity. Damage to barley in these fields will be slight. In later maturing fields more damage will result from stem rust.

In Weld County winter wheat stands were thin and weedy and stem rust ranged from a trace to 65% in severity and 100% prevalent.

In Logan County in the vicinity of Fleming many winter wheat fields were heavily infected; showing 65 to 100% severity and 100% prevalence. Many fields will not be harvested in this area. Other fields in the same vicinity were making from 7 to 15 bushels and a few early fields were making 20 to 25 bushels per acre. Information obtained at one of the elevators in Fleming was that 60% of the wheat tested under 50 pounds per bushel, the lowest being 36 pounds, with an average weight per bushel of 45 pounds.

In the Peetz area north of Sterling the winter wheat production was about normal. The average loss for Logan County should not exceed 25% or about 3/4 million bushels of winter wheat.

In Sedgwick County there was more early winter wheat and the loss in this county should not exceed 15%. Many fields were examined and stem rust infection ranged from a trace to 65% severity with 100% prevalence. One early maturing field was of particular interest,-- on June 23, a trace of stem rust was found, and on July 26, stem rust infection showed 25% severity with 100% prevalence and only a trace of damage. The grain coming into the elevators at Julesburg was testing from 50 to 58 pounds per bushel. Only a few loads were testing below 50 pounds.

In Phillips County loss due to stem rust will be about 20%. In Yuma, Washington, and Kit Carson Counties, the loss is estimated at about 5%. In Morgan County only a trace of damage will result. For Weld and Larimer Counties no loss estimations were made as much of the grain is still immature.

The majority of barley fields in Logan, Sedgwick, Washington, Yuma, and Kit Carson Counties escaped rust damage. In late-maturing fields, however, rust damage was estimated at 5 to 10% for each county.

Bunt on Wheat in Northwestern Colorado. A trip in Routt County was made in company with Mr. Armando Ulloa, Plant Pathologist of the Department of Agriculture, Quito, Ecuador. Several thousand acres of wheat were examined in the areas around Steamboat Springs and Hayden from July 28 to 31 inclusive.

In the district south of Steamboat Springs, 50 fields of winter wheat were inspected and bunt was found in all but 2 of the fields, infection ranging from a trace to 80%. Only a trace was found in spring wheat in this area. Laboratory examinations of the samples collected from all of the fields inspected showed that Tilletia levis [T. foetida] was the species involved.

In the many fields examined in the area south of Hayden, infection ranged from a trace to 10%. Microscopic examination of the samples collected revealed that only T. foetida was present in this district also.

Several hundred acres of winter wheat were visited in the territory north of Hayden across the Yampa River. Bunt infection ranged from 5 to 80%. Laboratory examinations showed both T. foetida and T. tritici [T. caries] present in this district. Some fields showed only T. foetida; while in others both T. foetida and T. caries were present. One large field in this area was of special interest. In the eastern portion of this field where only volunteer wheat was growing from 60 to 70% of the heads were smutted. Microscopic examination of the heads collected from this part of the field showed that 90% of the infection was due to T. foetida, the remaining 10% to T. caries. In the other portion of the field the seed had been treated and planted by drill. Here only 5% of the heads were smutted. Examination of samples collected at random showed that 95% of the smut in this part was due to T. caries and 5% to T. foetida.

Approximately 30,000 acres of wheat were planted in Routt County in 1943-1944. The average yield will be between 30 and 35 bushels per acre. The loss due to bunt is estimated at 20%.

Observations on Other Diseases. A trace of Loose Smut was common in most Barley fields in eastern counties. In Routt County the disease was common in all Barley fields, infection ranging from a trace to 2%.

A trace of Loose Smut was found in all wheat fields visited in Routt County.

No Stem rust was found in Routt County to date.

EMERGENCY PLANT DISEASE PREVENTION PROJECT

REPORTS ON POTATO LATE BLIGHT

Except as noted, reports are by Emergency Plant Disease Prevention Project personnel.

NEW ENGLAND: Late Blight (Phytophthora infestans) could not be found in Vermont this week. Dr. O. C. Boyd and Dr. Thomas Sproston Jr. report finding blight in 6 of the 21 fields examined in the Connecticut River Valley in the vicinity of Amherst, Massachusetts. Dr. Boyd stated that there was a heavy infection in one field, moderate infection in one, and light infections in the other 4 fields.--Robert C. Cassell, July 31-Aug. 4.

OHIO: Ohio reports Late Blight on July 24. Dr. P. E. Tilford reports as follows, "Dr. C. C. Allison probably has written you that he found slight Late Blight infection on Cobblers in some experimental plots operated by the Entomology Department at Marietta a few weeks ago. These were plots which have been kept green and growing by insect control but which had not had adequate fungicides." -- Quoted by I. E. Melhus, in mimeographed letter to members of the Late Blight Committee, Upper Mississippi Valley Plant Pathologists, July 31.

MINNESOTA: Late Blight was found on July 25 in 2 fields in Clay County, but nowhere else in that county nor in the remainder of the Red River Valley. Both fields were infected lightly and the weather was unfavorable for rapid spread of the pathogen. A potato dump was adjacent to one field, but blight was not observed on any potato vines at the dump. -- Ian W. Tervet.

IOWA: The greatest change in the Late Blight situation during the past week was in Iowa. Dr. Hooker reports as follows on July 28, "Yesterday I was in the Fertile area and with the exception of one field of Marbas Late Blight was present in all the fields. The growers are spraying but it is probable that they will experience some loss." Again on the 29th Dr. Hooker reports "I found Late Blight in a field at Garner, a new location in our State." The Garner area is fully 30 miles from the Fertile area.--I. E. Melhus, mimeographed letter to members of Late Blight Committee, Upper Mississippi Valley Plant Pathologists, July 31.

COLORADO: Dr. E. W. Bodine of the U. S. Emergency Plant Disease Prevention Project found Late Blight on potato stems and leaves in cull piles in Weld County, August 4. The organism was found fruiting profusely. Detailed surveys will be made with Dr. Bodine and Mr. W. J. Henderson. -- W. A. Kreutzer, Colorado Agricultural Experiment Station.

POTATO DISEASES IN THE RED RIVER VALLEY AND IN EAST-CENTRAL MINNESOTA

Ian W. Tervet

Late Blight. See above with other Late Blight reports.

Black Leg (Erwinia carotovora) [E. phytophthora] is common in many fields this year, a maximum of 20% being seen in one field, although most infected fields had from 1 to 2% infected plants.

Bacterial Ringrot (Corynebacterium sepodonicum) appears to be occurring in about the same amount as last year. Despite the emphasis on the precautions necessary to combat this disease, too many growers are careless and allow their stock to become contaminated. Occasional fields of table stock had upwards of 1%, and in one field 10% of the plants were infected. Most commonly however, one or two ringrot plants only are found in infected fields.

Early Blight (Alternaria solani) is occurring in practically all fields but infection so far is not severe.

Hopperburn is common in east-central Minnesota. In the sand land region north of the Twin Cities, heavy injury from Hopperburn has occurred. The leaf hopper population is much less in the Red River Valley, little injury resulting.

Purple Top Wilt. The severity of Purple Top Wilt appears to be similar to that of last year. In the Red River Valley, fields contained up to 5% infected plants, Triumphs and Pontiacs having higher readings than Cobblers. It has been suggested that much of the Purple Top Wilt has been due to the Aster-Yellows Virus. The virus presumably over-winters in perennial weeds, being spread from them to potatoes by insects, possibly the potato leaf hopper being the agent. Several weeds, including Erigeron canadense, Sonchus arvensis, S. asper, Ambrosia artemisiaefolia, and Cirsium arvense, quite commonly have yellowed leaves and a tendency to produce additional shoots from the axils of infected leaves. These plants supposedly have been infected with the Aster-Yellows Virus. Should Purple Top Wilt in potatoes result from infection by this virus, then it might be expected that potatoes, in those regions where many weeds are infected, should have most Purple Top Wilt. This does not necessarily occur. There are some indications that Purple Top may be associated with soil conditions. At the moment, field observations do not indicate that all Purple Top Wilt, as it occurs in Minnesota and the Dakotas, is due to the Aster-Yellows Virus. Investigations are necessary to determine the precise nature of this disease or diseases.

EMERGENCY PLANT DISEASE PREVENTION PROJECT. August 1.

OTHER REPORTS ON POTATO DISEASES

Reports are of Emergency Plant Disease Prevention Project surveys.

EARLY BLIGHT IN VERMONT: Early Blight was present in small amounts only, except in a few cases of early potatoes where it was 100% prevalent with severity moderate to heavy. -- Robert C. Cassell, July 31 - August 4.

POTATO DISEASES IN COLORADO: Several fields were inspected in the vicinity of Brush in Morgan County in eastern Colorado, and only a small amount was found of Bacterial Ringrot, Fusarium Wilt (F. oxysporum), and Early Blight.

In Routt County in northwestern Colorado several hundred acres were examined. Blackleg was the most common disease encountered. Rhizoctonia solani was found in small amounts in a few fields. A trace of Mosaic (Virus) was evident in all fields inspected. In one field a few plants were found to be infected with Fusarium solani f. cumartii. A disease possibly caused by Rhizoctonia, that produced local lesions below the ground line and girdled the stem, was very prevalent in one field. The aerial symptoms exhibited by these plants were different from the ordinary Rhizoctonia symptoms. -- E. W. Bodine, period ending July 31.

BLACKLEG AND VIRUS DISEASES IN EASTERN IDAHO: Most of the period July 23 to 29 was spent with the county agents in Bonneville, Jefferson, Madison, Fremont, Teton, and Butte Counties. Of special interest was the widespread occurrence, and in some fields examined the higher percentage, of Blackleg. This disease has apparently become of more than usual importance. Generally speaking, stands are about average, although late-seeded fields are quite spotted and show a wide variation in size of plants. One field showed about 75% Mild Mosaic (Virus) but usually this disease would run about 2 to 3%. Witches'-Broom was encountered rather frequently; infection in 2 fields was about 2%. -- Earle C. Blodgett

TOMATO DISEASES IN EASTERN MISSOURI

T. W. Bretz

Staked, field tomatoes are grown in abundance in relatively small plantings scattered throughout St. Louis County, visited during the week ending July 29. The number of fields examined probably represents only a small percentage of the total number of plantings in this area, but it is felt that the fields selected were fairly representative.

Mosaic (Virus) appears to be generally present in all plantings, ranging from an occasional infected plant to situations in which fully 75% of the plants are diseased. In most instances the Mosaic was doing little damage and it appears to have become established relatively late in the course of the development of the plants.

Early Blight (Alternaria solani) was generally prevalent and in a number of fields had caused the death of much of the older foliage.

Septoria Leaf Spot (S. lycopersici) did not appear to have reached damaging proportions as yet, although light infection could be found in all plantings.

Fusarium Wilt (F. oxysporum f. lycopersici) was observed in a number of fields, ranging from a trace to as much as 5% of the stand. Other fields apparently were Wilt-free.

Blossom-End Rot (physiogenic) appeared to account for the greatest fruit loss (estimated average 3%), other than that caused by Growth Cracks, insects, birds, etc., which permitted the development of various secondary Decay producing organisms and which caused an estimated 5% loss.

Buckeye Rot (Phytophthora sp.), Anthracnose (Colletotrichum phomoides), Bacterial Spot (Phytomonas [Xanthomonas] vesicatoria), and Bacterial Canker (Phytomonas michiganensis) [Corynebacterium michiganense] fruit infections were observed in the various plantings in varying amounts. None, however, caused more than a trace of damage in the entire area.

EMERGENCY PLANT DISEASE PREVENTION PROJECT

DISEASES REPORTED ON CUCURBITACEOUS CROPS

Reports are of Emergency Plant Disease Prevention Project surveys.

DISEASES OBSERVED ON SQUASH AND CUCUMBER IN NEW ENGLAND: On Squash, traces of Bacterial Wilt (Erwinia tracheiphila) were found in Scarsboro in southern Maine, and less than 1% in one field in Stratham, New Hampshire. Traces were also found on winter squash in Concord, Middlesex County, Massachusetts. Scab (Cladosporium cucumerinum) affected the leaves of about 5% of the plants in a field of summer squash in Concord; in another summer squash field in West Bridgewater in Plymouth County between 5 and 10% of the plants were affected and Scab was well developed on a few of the fruits.

A trace of Bacterial Wilt was found in a Cucumber field in Stratham, New Hampshire. In Massachusetts it was observed in 3 fields as follows: 10% in a 2-acre field in West Bridgewater, 15% in a 1-acre field in Scituate, and 3% in 3 acres in Auburn. Angular Leaf Spot (Pseudomonas lachrymans) was found in Massachusetts in a 5-acre field in Auburn, where it occurred on at least 90% of the leaves with light to moderate severity. -- Robert C. Cassell, July 17-19, 20-23, 24-29.

DISEASES ON CANTALOUP IN WESTERN NEW YORK: From July 24 to 28 fields were visited in Monroe, Orleans, Niagara, Erie, and Chautauqua Counties. The most important disease appeared to be Fusarium Wilt, caused by a variety of Fusarium [oxysporum f.] nivcum. It was present in each of the 8 fields visited in the 5 counties, but not in those portions of these fields planted with the Iroquois variety. In one case, a field of Queen of Colorado showed approximately 50% of the plants to be affected. Traces of seed-borne, muskmelon Mosaic (Virus) and Bacterial Wilt were each present in 4 fields. In one field a nutritional trouble was general and serious. The leaves were mottled by an Interveinal Chlorosis, and the growth of the vines is stunted. The effects of this malady can usually be overcome by applying lime to the soil. -- John Niederhauser.

DISEASES OF CANTALOUP IN MICHIGAN: Several fields north of Detroit comprising an area of over 50 acres were inspected. Considerable Bacterial Wilt was present in some fields, one area of 20 acres having 3% of the plants killed. Fusarium Wilt was doing some damage and had killed about 1% of the plants in one 15-acre field. Macrosporium Leaf Spot (M. cucumerinum) [= Leaf Blight, Alternaria cucumerina] was found only rarely owing to the dry weather conditions in southern Michigan. -- M. R. Harris, July 17-22.

DISEASES OF CUCURBITS IN MISSOURI: On Summer Squash in one planting in western Missouri (week ending July 29), approximately 5% of the fruits were

affected with a soft decay, caused by a species of Phytophthora (? capsici). Leaf petioles, and in a few instances, the main vines, were also infected. In another planting many blossoms and a few scattered fruits were infected with Choanephora cucurbitarum.

In eastern Missouri (week ending July 29), Cantaloup plantings in the St. Louis area were rather generally infected with Mosaic (virus), the percentage of hills affected ranging from 1 to 5%. Wilt, which appeared to be primarily Bacterial, although symptoms characteristic of Fusarium Wilt were present in some instances, as was some Stalk Borer damage, was present in all plantings, ranging from a trace to as much as 1%. The foliage and fruit was free from infection except for a trace of Alternaria blight on the leaves.

In the Charleston area in Mississippi County in southeastern Missouri, the Watermelons and Cantaloups were generally in good condition. Blossom-End Rot (Pythium ? sp.) was causing slight damage in most watermelon plantings and Fusarium Wilt was evident to a limited extent in both watermelon and cantaloup fields. Some Bacterial Wilt was noted in the cantaloup plantings. Light Anthracnose (Colletotrichum lagenarium) infection of watermelon foliage was observed and a trace of Alternaria blight was present on the cantaloup leaves. -- T. W. Bretz

MELON DISEASES IN THE YUMA AND SALT RIVER VALLEYS OF ARIZONA: The cantaloup acreage in the Yuma and Salt River Valleys during 1944 was approximately 11,000 acres. Honeydew melon plantings amounted to approximately 3,000 acres. Figures were not obtained for watermelons but the acreage was considerably more than that of honeydew melons.

Erysiphe cichoracearum is usually of minor importance in the 2 melon-growing valleys. This past season, however, it caused considerable loss in the Yuma Valley. From July 5-8, at the conclusion of the cantaloup harvest, melon plantings throughout the Yuma Valley were visited. Powdery Mildew was present in all of the many cantaloup plantings observed, doing very slight damage in 4%, slight damage in 64%, moderate damage in 24%, and severe damage in 8% of the plantings. Of several honeydew melon plantings, Powdery Mildew was doing but very slight damage in 3 instances. The cantaloup and honeydew melon fields were frequently adjacent. Mosaic was the only disease observed on watermelons. A very slight amount was seen in one planting. Sunburn and injury to the rind by Diabrotica vittata were noticed in a few watermelon fields.

The week of July 10-15 was spent in the Salt River Valley. Erysiphe cichoracearum was only observed in 3 of many cantaloup plantings. In 2 instances the damage was recorded as very slight and in the other as moderate. Mosaic was observed in 3 plantings doing very slight to slight damage. Of several honeydew melon fields, a moderate amount of Mosaic was observed in one 0.1-acre planting. Fusarium oxysporum f. niveum was causing slight loss in one 9.5-acre planting of watermelons. The only other disease of this crop was Mosaic and it was causing very slight damage in one case and moderate in another. Injury from sunburn and Diabrotica vittata was also present on watermelons in the Salt River Valley.--William G. Hoyman.

REPORTS ON DISEASES OF OTHER VEGETABLE CROPS

Reports are of Emergency Plant Disease Prevention Project surveys.

DISEASES OBSERVED ON BEANS: Halo Blight (Pseudomonas medicaginis var. phascolicola) was causing slight to moderate damage in a 1-acre planting of French Horticultural shell beans observed in Wells, York County, in southwestern MAINE (July 20-23). The plants were 100% affected but it was too early to tell how much the yield would be reduced. On bush snap beans in Wells prevalence of the disease was about 25% and severity slight.

Halo Blight will cause some loss in a field of bush snap beans with 95% infection observed in Somersworth, NEW HAMPSHIRE (July 17-19). Severity was moderate to heavy. Potassium surplus was causing an almost complete loss of a small area in a garden pointed out in Durham by Dr. M.C. Richards. Symptoms appeared much the same on the leaves as those of halo blight, but the plants were also stunted in growth.

In Plymouth County in southeastern MASSACHUSETTS (July 24-29), Halo Blight was observed in a planting of shell beans in Lakeville. The plants were growing under exceeding dry conditions and although there was moderate infection on about 5% of the plants apparently more damage was caused by Drought than by the disease. On pole beans less than 1% Mosaic (Virus) was observed in a planting in Bridgewater and another in West Bridgewater. On bush snap beans Dry Foot Rot (Fusarium martii) [F. solani f. phaseoli] was found in one field in West Bridgewater. Only a small percentage of the plants were affected as infection was confined to plants in scattered low areas. A trace of Mosaic was found in one field in West Bridgewater. -- Robert C. Cassell.

In western NEW YORK, Halo Blight was observed in slight to moderate amounts in 3 fields, 2 in Monroe County and 1 in Erie County. In the Erie County field (variety Tendergreen), Anthracnose (Colletotrichum lindemuthianum) had forced the grower to give up the field as a total loss. One or more lesions were present on 60% of the pods. In this same field "Common" Bacterial Blight (Xanthomonas phaseoli) was general. The grower had used his 1943 crop as a source of seed. An adjoining field planted with imported Tendergreen seed showed no Blight and little Anthracnose. -- John S. Niederhauser, July 24-28.

In southern MONTANA, Common Bacterial Blight was seen in a market gardener's field near Stevensville in the Bitterroot Valley. Halo Blight was seen in a field of seed beans near Ballantyne in the Lower Yellowstone Valley, and has also been seen in several garden plots at Bozeman. -- C.M. Slagg, fortnight ending July 15.

No Rust (Uromyces phaseoli var. typica) was found in Morgan County, COLORADO, up to July 27. A trace to 1% of Mosaic (Virus) was found in all fields examined. A trace of Red Node (Virus) was found in a few of the fields. -- E. W. Bodine.

Root Rot [cause not specified] is regarded as very prevalent, and in many cases, very severe in fields observed over most of Twin Falls County, IDAHO. One field on old pasture land did not show a trace of Root Rot, while beans on alfalfa land showed moderate infection, and beans on old bean land generally showed severe damage. Sclerotinia Rot was found on a few plants and the organism (S. sclerotiorum) had formed sclerotia. -- Earle C. Blodgett, July 16-22.

BEET LEAF SPOT: Diseases were practically absent on beets observed in the DELAWARE-MARYLAND-NEW JERSEY area May 15-20, except that where large plants had been forced by irrigation in the Vineland area of New Jersey Leaf Spot (Cercospora beticola) was moderate to severe in 2 plantings according to E. A. Walker,

T. W. Bretz reports (week ending July 29) that young stands of garden beets in east-central MISSOURI, planted for fall marketing, showed light Leaf Spot attack.

DISEASES OBSERVED ON CARAWAY IN EASTERN WASHINGTON: In Whitman County, a trace of what appeared to be Aster Yellows (Virus) on caraway was seen in a 2-acre field. Sclerotinia [sclerotiorum] Rot was prevalent but the loss was not severe. Well-formed sclerotia were found in rotted stems. A trace of Dodder [Cuscuta sp.] was found. -- Earle C. Blodgett, July 10-15.

REPORTS ON CARROT DISEASES: Severity of Cercospora Blight (C. carotae) was light to moderate in 3 fields observed in NEW ENGLAND. Prevalence was 80% in a small acreage in Wells in southwestern Maine, and 100% in a small field in Concord, Middlesex County, and about 60% in a half-acre field in Auburn, Worcester County, Massachusetts. Less than 1% infection by Aster Yellows (virus) was found in a small field in Auburn. A serious case of Nematode [not specified, ? Heterodera marioni] injury was found in an area of about an acre in a field in Auburn. -- Robert C. Cassell, July 20-23, 24-29.

In one field in Monroe County, western NEW YORK, the Rootknot Nematode was present in those carrot rows planted in the same location as the rows (42 inches apart) of the previous season's seed-celery crop. In an adjoining field, heavy application of manure apparently had induced "Multiple-Rooting" of many of the carrots. The grower had confused this trouble with the injury caused by the rootknot nematode but the latter was not present. -- John S. Niederhauser, July 24-28.

A trace of Aster Yellows and a trace of Bacterial Blight (Xanthomonas carotae) were noted in Idaho County in western IDAHO (July 10-15). Bacterial Blight was found for the first time in the Twin Falls district of southern Idaho; in one case, the roots had been shipped in from California.-- Earle C. Blodgett.

In carrot seed fields examined in Malheur County in eastern OREGON, Aster Yellows ranged from none to moderate infection, Bacterial Blight from a trace to moderate, and Mosaic (Virus) was noted. Some of the stands were poor, others were very good, mostly they ranged from fair to good. -- Earle C. Blodgett.

REPORTS ON DISEASES OF CELERY: In NEW HAMPSHIRE, Late Blight (Septoria apii) was found in Durham as a light infection on about 50% of the plants in one field. -- R. C. Cassell, July 17-19.

Early Blight (Cercospora apii) was common in the one field examined in the Ramsey-Hennepin-Anoka County vegetable-growing area of MINNESOTA. -- Ian W. Tervet, July 6-11.

A trace of Late Blight was found in some of the fields inspected in the truck crop area in Denver County, COLORADO. The growers have started to spray with Bordeaux 4-4-50. Fusarium Yellows (F. apii) [F. oxysporum f. apii] wasfound in a few plants in a 10-acre field of the Golden type. -- E. W. Bodine, week ending July 15.

DISEASES REPORTED ON CABBAGE AND OTHER CRUCIFEROUS CROPS: In NEW HAMPSHIRE, Clubroot (Plasmodiophora brassicae) was reported by Dr. M. C. Richards to account for a 25% loss in a small Cabbage field in Litchfield. -- Robert C. Cassell, July 17-19.

In Monroe County in western NEW YORK, Magnesium Deficiency was seen in one Cabbage field on a farm where other crops also showed it. Downy Mildew (Peronospora parasitica) was present in one field where a heavy manure application had been supplemented by a 5-10-10 commercial fertilizer. In a field where 75% of the plants were diseased with Fusarium Yellows (F. [oxysporum f.] conglutinans), the trouble was traced to the seed-bed, which was located in a section of a field that had been planted in cabbage the year before. -- John Niederhauser, July 24-28.

In southern MICHIGAN, several fields of crucifers were inspected north of Detroit. One field of Cauliflower was badly damaged and may prove to be a total loss due to Black Rot (Bacterium campestre) [Xanthomonas campestris]. A field of Cabbage covering several acres had been severely damaged by Fusarium Yellows. Part of the field had been plowed under. The variety was Golden Acre. Resistant strains adjacent to this variety were not affected. -- M. R. Harris, July 17-22.

In the truck crop area in Denver County, COLORADO, Fusarium Yellows was found in small amounts in most of the Cabbage fields inspected. The highest amount of infection found in any field was 2%. From 10 to 20% of the cabbage plants in many fields are Bolting. In some fields many plants are not forming heads; this was probably due to early insect injury. -- E. W. Bodine, week ending July 15.

In Lewis County in western IDAHO, one Turnip field was noted in which many plants, in small patches or scattered in the field, had died early with a very poor set of seed. Although the loss was slight, the condition was of interest since the cause was not determined. -- Earle C. Blodgett, July 2-8.

POWDERY MILDEW AND RUST ON "ITALIAN DANDELION" IN NEW JERSEY: Powdery Mildew (Erysiphe cichoracearum) was abundant on the leaves and seed stalks of this crop which had been left for seed in the Vineland section. Rust (Puccinia hieracii) was frequently observed in Vineland. -- E. A. Walker, May 15-20.

DISEASES ON LETTUCE IN MASSACHUSETTS: Yellows (Aster-Yellows Virus) was observed in 3 plantings on one farm in West Bridgewater, Plymouth County. The oldest planting, which was the one being cut at present, had 7 to 8% infection. The second oldest planting appeared as though it would be at least 50% affected by heading time. The third planting was too small to tell much about at present. Yellows was also seen on a second farm in a field where cutting had just been started. The plants in this field were about 18% affected.

Bottom Rot (Rhizoctonia solani) was found in 2 fields in West Bridgewater. Prevalence ranged from 1 to 2% in both fields. -- Robert C. Cassell, July 24-29.

LETTUCE DROP AND OTHER DISEASES IN NEW JERSEY: Harvest of this crop was commencing in southern New Jersey when visited May 15-20. Drop due to Sclerotinia sclerotiorum was observed in most irrigated fields visited,

and to a less extent in dry land fields. Boston lettuce was more affected than Iceberg. Romaine lettuce was practically free. Counts in fields in the Cedarville section showed 1, 2, and 5% infection; in the Newport section 0, 1, 1, 1, 1, 2, 2, 2, 3, 3, and 5%; in the Vineland section 0.5, 0.5, 1, 1, 2%. Sclerotia were abundant.

Drop due to S. minor was practically destroying the crop of Boston lettuce observed on 3 farms in the South Vineland section. Counts showed 20% worthless heads on one farm and 55% on another. The crop was just ready to be harvested. Sclerotia of the fungus were found in great numbers. Observations on farm practices in this section revealed that many farmers were irrigating late at night, which would favor the rapid development of this disease on lettuce.

Leaf Browning or Tipburn (undet.) was observed to a slight extent in South Vineland. An undetermined Leaf Spot was observed in one field in South Vineland. Symptoms typical of Mosaic or other virus diseases were observed in South and East Vineland. In one field in East Vineland 10% of the plants were stunted and showed leaf Mosaic symptoms. -- E. A. Walker.

LETTUCE DROP IN MONTANA: Drop (Sclerotinia sclerotiorum) caused from 10 to 50% loss in 3 fields near Stevensville in the Bitterroot Valley. -- C. M. Slagg, fortnight ending July 15.

DOWNY MILDEW ON LETTUCE IN COLORADO: Downy Mildew (Bremia lactucae) was 100% prevalent in all fields visited in Denver County, but damage was slight. -- E. W. Bodine, week ending July 15.

REPORTS ON DISEASES OF ONION: Non-parasitic Blast was found in Durham, NEW HAMPSHIRE. Prevalence was about 50% and severity light to moderate.-- Robert C. Cassell, July 17-19.

Onions in the Fertile area in North County, IOWA, were affected by 2 organisms. Phoma terrestris caused a trace of Pink Root in some fields. Urocystis cepulae, Smut, occurred in amounts from a trace to as much as 20%. In general, however, the crop appeared to be doing well. -- Edgar F. Vestal, period ending July 8.

Several hundred acres of onion fields grown for seed (from seed planting) were inspected in Montrose and Mesa Counties, in western COLORADO. A few plants were found affected by a trouble (? virus) that caused malformation and increased growth in the floral parts. In general, the onion fields were in excellent condition. -- E. W. Bodine, week ending July 22.

Only a trace of "Frizzle Top" was found in onion fields inspected in Malheur County in eastern OREGON. -- Earle C. Blodgett, July 10-15.

FUSARIUM ROOT ROT OF PARSLEY IN NEW JERSEY: A Root Rot or Damping-Off from which a species of Fusarium was isolated was found to some extent in most irrigated fields visited in southern New Jersey. Growers in East and South Vineland were complaining about the destruction caused by the disease in their fields. Some growers were suffering heavy losses of plants about 2 to 3 inches high. -- E. A. Walker, May 15-20.

LEAF SPOT OF SPINACH IN WESTERN WASHINGTON: Heterosporium variabile was prevalent on plantings made in Clallam County last fall for the early cutting, then allowed to go to seed. Later spring plantings just starting to bolt were much freer from infection. -- Lytton W. Boyle, June 22.